



Access the Rescue Squad video interactives, scripts, and digital copies of handouts to share with participants online at: [invent.org/IP/curriculum-videos](http://invent.org/IP/curriculum-videos).

Additional Instructor Resources can be found online, which includes an: Invention Project Instructor Guide, Technology Guide, Book List, Digital Curriculum, Timing Guide, Rubrics, Pre- and Post- Assessments, and Materials Lists.

One hardcopy master of each Handout Booklet has also been provided. Prepare copies or digitally share the handouts with the participants ahead of each session.

### Be sure to...

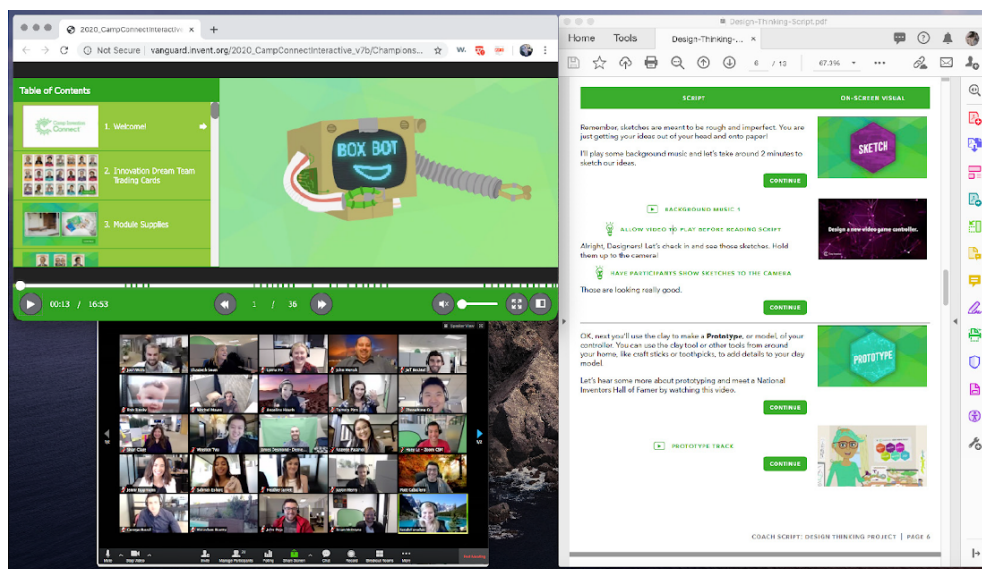
- Get comfortable with the script and interactive format ahead of time.
- Practice sharing the interactive video with another teacher or staff member on your chosen platform. Be sure to select “Share computer sound” or “Share audio” before sharing the video.
- Close any extra tabs that are open in your browser.
- Set any security settings before sharing your screen.
- Click on the two controls on the lower left of your screen to understand their function.
- Share or Unshare your screen as needed to enhance the experience for your class.
- Incorporate the Guiding Questions throughout the session to further the learning for your class. These features can be found at the end of each session.
- Refer to the Zoom or Google Meet Troubleshooting Guide for further information.

### Decide how you will read the script. Choose one of the options below:

- Option 1: Have the script on a mobile device, tablet, or smartphone.
- Option 2: Use the suggested screen layout below.
- Option 3: Print out the script ahead of time. Place the script at eye level so you can keep eye contact with your camera.

Shared Window →

ZOOM Window →



← Script



# RESCUE SQUAD™ OVERVIEW CHART

Unit	Session	Anchor Standard
Unit One: Ecosystem Explorations	Session 1: Operation Eco-Adventure	STEAM
	Session 2: Ziplining	Math
	Session 3: What Would Rescue Squad Do?	Responsible Decision-Making
Unit Two: Nature's Engineering	Session 4: Operation Bear Trouble	STEAM
	Session 5: Hatch or Slide	College and Career Readiness
	Session 6: Save the Salmon	Relationship Skills
Unit Three: Lights - Bioluminescence and LEDs	Session 7: Operation Night Light	STEAM
	Session 8: My Glowing Plant	Reading
	Session 9: Enlightened	Self-Management
Unit Four: Water Pollution	Session 10: Operation Red-Winged Rescue	STEAM
	Session 11: Pipeworks	Writing
	Session 12: Pollution Problems	Self-Awareness
Unit Five: Earth and Human Activity	Session 13: Operation Leave No Trace	STEAM
	Session 14: Plastic Pollution Is Not the Solution	Speaking and Listening
	Session 15: Empathy and the Environment	Social Awareness

**INSTRUCTOR PLAN AHEAD**

Create an Intermediate Glowing Plant sample.

Locate the following materials from the Instructor Rescue Squad Kit:

- Binder clips (children will have clothespins)
- Coin battery
- Conductive tape
- Craft stick
- Dark brown crinkle paper
- Flowerpot
- Green tape
- Leaf Template
- Lei flower

Locate the following materials from the Instructor Inventor Supplies Kit:

- Masking tape
- Scissors

Measure and cut one, 5-inch piece of conductive tape and one, 9.5-inch piece. There is a ruler on the Rescue Squad Notes handout for reference.

Watch the “Glowing Plant Stem” Track ahead of time, following the instructions to create an Intermediate Glowing Plant sample.

Alternatively, the instructions are also available on the Intermediate Glowing Plant Stem handout.

54

★ SHARE SCREEN

CLICK TO PLAY UNIT INTRO

Welcome back to Rescue Squad Headquarters! Based on the success of your previous operation, you’ve just been given another important mission!

CONTINUE



55

Be sure you have your Rescue Squad Session Seven materials to accomplish today’s task.

Give me a thumbs up when you have all your materials. Let’s hear about your next Operation.

CONTINUE



56

## ★ PLAY THE OPERATION NIGHT LIGHT TRACK

Sometimes too much light can be unhealthy for people and the environment because it uses a lot of electricity or makes it too bright at night.

It can also be confusing for animals that rely on the dark, like owls, lightning bugs, and even flying squirrels. It's important to consider nature when we are using outdoor lights at night.

Let's create an energy-efficient glowing plant that might be a part of a City Park garden.

CONTINUE



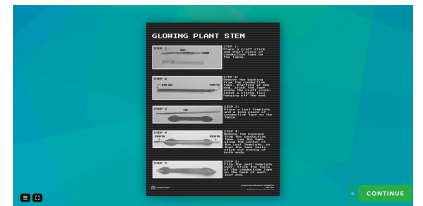
57

The glowing plant we create will turn on when we pinch the leaves together and stay off when the leaves are not touching. This feature will help conserve energy!

## ★ SHOW A SAMPLE TO PARTICIPANTS

Find your Glowing Plant Stem handout. It's a 4-page handout and the first page looks like this. Let's prep some of our materials together.

CONTINUE



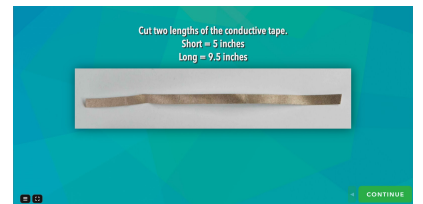
58

Find the conductive tape. Use the ruler on the side of the Rescue Squad Notes handout page to cut two lengths of conductive tape.

A short piece that is 5-inches and a long piece that is 9.5-inches.

Now gather the following:

- 2 Clothespins
- 1 Craft stick
- 1 Leaf Template
- 1 Rainbow LED
- Green tape
- Masking tape



Keep your Glowing Plant Stem handout nearby as we watch this video to create our glowing plant stem.

CONTINUE

59

★ **PLAY THE GLOWING PLANT STEM TRACK**

★ **PAUSE AND REWIND AS NEEDED**

Be sure to use plain masking tape to secure the LED/coin battery connection instead of the green painter's tape since it will provide a more secure connection. Use the green painter's tape to wrap decoratively.

★ **IF PREFERRED, WRITTEN STEP-BY-STEP INSTRUCTIONS FOLLOW:**

1. Gather the craft stick and the short piece of conductive tape.
2. Remove the conductive tape backing. Start at one end and stick the tape to the craft stick. Make sure to leave a sticky tail of tape hanging off the end.
3. Place the Leaf Template and the long piece of conductive tape on the table.
4. Remove the backing from the long piece of conductive tape. Lay the tape along the center of the Leaf Template, so that the tape tails stick out evenly at both ends.
5. Flip the leaf over, stick the tails of the conductive tape on the back of each leaf end.
6. Fold the Leaf Template in half, lengthwise.
7. Unfold the Leaf Template and cut it along the fold line.
8. Place the leaves, tape side up. Fold each leaf back toward the stem. They should look like clapping hands.
9. Lay the craft stick, tape side down, on the table. Lay the two leaves tape side up on top of the craft stick, clapping hands together. Use two clothespins to hold them together. Ensure that the green stem lines up with each craft stick end to be able to successfully form a circuit.
10. Wrap a piece of green tape around the craft stick and one leaf stem, close to the leaf. Do not wrap green tape around the area covered by clothespins. Repeat for the other stem. Remove the clothespins. Make sure to leave some conductive tape at each end of the craft stick exposed.



11. Pause and check that your stem assembly resembles the image from Step 10.
12. Place the coin battery plus side up on the end of the stem right next to the conductive tape tail. Wrap the conductive tape tail around the coin battery.  
Tightly wrap plain masking tape around the coin battery and craft stick.
13. Lay the stem so that the leaves are facing up and the battery is on the right side. The LED will go on the left side of the stick at the opposite end from the battery. Place the shorter leg of the LED on the same side of the craft stick as the leaves.
14. Pinch the leaves together. Does it light up?


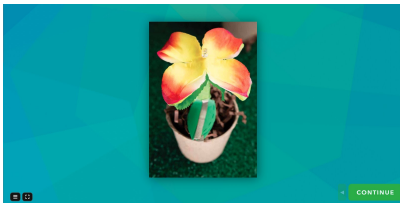
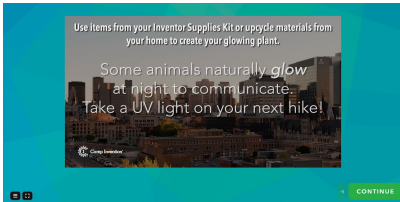

**★ FOR PARTICIPANTS WHOSE PLANT LIGHTS UP, TELL THEM TO SECURE THE LED WITH MASKING TAPE**

**★ FOR PARTICIPANTS WHOSE PLANT DOES NOT LIGHT UP, GUIDE THEM THROUGH THE FOLLOWING TROUBLESHOOTING TIPS:**

- Check that the shorter leg of the LED is on the same side of the craft stick as the coin battery.
- Check that the LED legs are in contact with the conductive tape on both sides of the craft stick.
- Press down on the masking tape around the LED legs and around the coin battery to ensure tight electrical connections.
- Be sure that the conductive tape is visible on the front side of both green stems and extends to each end of the craft stick.
- Be sure that the green stems are taped to the front side of the craft stick, conductive tape-side out.
- Be sure that conductive tape is adhered to the back side of the craft stick and is visible.
- Ensure that the coin battery is plus side up and that the conductive tape tail is flipped over and in contact with the coin battery.

**★ CONTINUE WITH THE REST OF THE GLOWING PLANT STEM ASSEMBLY**

- Wrap green tape around the rest of the stem.
- Plant the stem in the center of the flowerpot, filling in around it with crinkle paper.
- Pat it down and add more crinkle paper as needed to hold the

	<p>stem securely.</p> <ul style="list-style-type: none"> <li>Place a Think Green sticker on your flowerpot.</li> </ul> <p>★ <b>HAVE CHILDREN SAVE THE CLOTHESPINS TO BE USED DURING SESSION TEN</b></p> <p style="text-align: right;"><b>CONTINUE</b></p>	
60	<p>It is now time to make the “top” part of your Glowing Plant. The petals you have been sent may be different than what I’m showing but notice how there is a hole in the center so that the LED sticks out.</p> <p>You can poke the LED through the flower and use it just like that or add to it with items from your Inventor Supplies Kit or any other upcycle items from your home.</p> <p style="text-align: right;"><b>CONTINUE</b></p>	
61	<p>Your finished glowing plant may look like this, but it doesn’t have to be a flower at all. Make it as unique as you are.</p> <p>★ <b>SHOW SAMPLE GLOWING PLANT TO PARTICIPANTS</b></p> <p>I’ll play some background music and give you about 10 minutes to create the rest of your glowing plant.</p> <p style="text-align: right;"><b>CONTINUE</b></p>	
62	<p>★ <b>PLAY THE UNIT THREE MUSIC TRACK FOR UP TO 10 MINUTES</b></p> <p>★ <b>CHECK IN ON PARTICIPANTS PERIODICALLY</b></p> <p style="text-align: right;"><b>CONTINUE</b></p>	
63	<p>Let me unshare my screen.</p> <p style="text-align: center;">★ <b>UNSHARE SCREEN</b></p>	

Ok, everyone, let's see your glowing garden. Hold your plant up to the camera for everyone to see! Be sure to pinch the leaves together to make it light up!

CONTINUE

★ GUIDING QUESTIONS

- How else could you help young salmon get past the turbines?
- What other animals might live in a river habitat?
- What ideas do you have to make hydroelectric dams safer for nature?

Inventing often involves working together to reach an ultimate goal. National Inventors Hall of Fame Inductee Kristina Johnson enjoys working as a team because it brings together different perspectives that can help solve a problem. Kristina Johnson and her team have looked for ways to reduce the negative environmental impacts of hydroelectric dams to help bring electricity to people's homes. Hydroelectric dams make electricity for lights, electronic devices, and more without polluting the water or air. Some kinds of hydroelectric dams can make energy safely without harming nature. When energy is safe for people and the planet, everybody wins!

- Have you ever planted a garden? What did you like best?
- What was your favorite part of this activity?
- Why are gardens and parks important in cities?

Did you know that access to nature can have a positive impact on your health? People who have access to green space and the outdoors are happier, healthier, and less stressed. Scientists have actually measured lower levels of the stress hormone, cortisol, in people after they spend only 20–30 minutes outdoors in nature. Nature is amazing!

★ END OF SESSION SEVEN

★ UNSHARE SCREEN